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Staff Report

To: Sarah Medary, PDD Executive Director
From: Ethan Nelson, Waste Prevention and Green Building Manager
Date: February 16, 2012
Re: Council Work Session on Plastic Bag Bans

Overview

This staff report responds to the questions outlined in Councilor Zelenka's Work Session Poll on the following question, "Should the City promote the use of reusable bags by prohibiting the use of single-use plastic bags by retail establishments?"

The specific questions raised in the poll were:

1. What did the City of Portland enact?
2. What did the Legislature try to enact?
3. What are the environmental benefits?
4. How does this impact our Council goal of reducing solid waste?
5. What are the economic costs & benefits for Eugene and Oregon?
6. What are the social equity implications?

Background

The City of Eugene regulates licensed garbage and recycling hauling activities within the city limits. These activities are guided by Oregon Revised Statutes as well as the Eugene City Code. In particular, ORS 459a outlines the "Opportunity to Recycle" for all Oregonians and sets garbage diversion rates that county's should strive for. The Lane County goal is to achieve 54% diversion on an annual basis by 2009. This level was reached for the first time in 2010 (57.4%). Outside of this statewide policy, waste reduction and diversion is included as an action item within Eugene's Climate and Energy Action Plan.

Eugene's short history with plastic bag recycling started in 2007 when the City of Eugene received funding from the American Plastics Council to purchase recycling bins for area retailers. The program provided an option for local businesses to support recycling through a "take-back" approach. Roughly 16 business over multiple locations and a range of business sizes participated in the program. The program has since been reduced due to the low recycling market value of the material being collected and the discontinuation city staff collecting and transporting the material to Ecosort, which was not feasible for the long term.

At roughly the same time in 2007, Eugene's largest garbage hauler, Sanipac, started accepting plastic bags commingled in the curbside recycling for commercial and residential accounts. Unfortunately, this practice resulted in contamination of the recycling stream. The bags would jam the gears in the sorting machines at the Material Recovery Facilities (MRF's) in Portland, causing the processing lines to shut

down and be cleaned. The local practice of comingling was stopped in 2008 as a result of feedback from the processors.

The latest chapter in the local story of plastic bags was the review of a plastic bag tax by the Lane County Board of Commissioners in 2008. At the request of a concerned citizen, the Commissioners asked staff to assess the implications of a plastic bag tax. Staff responded with a thoughtful analysis and the board deliberated but ultimately decided to not take action on the tax or a bag ban.

During the 2010 Legislative Session, SB 1009 was introduced to ban plastic bags in Oregon. Due to the nature of the special session, the bill did not move. In the 2011 Regular Session, the proponents of SB 1009 introduced SB 536. During the interim period, a number of local municipalities (including City of Portland) discussed the implementation of a plastic bag ban, but waited to see if a statewide solution would be worked out at the Legislative level in 2011. When SB 536 did not move forward, individual municipalities once again started the process of evaluating a bag ban.

Analysis

This section provides summary responses and analysis for each of Councilor Zelenka's questions.

What did the City of Portland enact?

On July 21, 2011 the City of Portland passed Ordinance 184759 which amended the Portland City Code by adding Chapter 17.103, Single Use Checkout Plastic Bags. (Portland, 2011) The new chapter prohibits certain retail stores from distributing single-use plastic checkout bags to their customers, encourages the distribution and use of reusable bags, and permits stores to sell to consumers recycled or compostable bags for checkout use, effective October 15, 2011.

Within the prohibition of single-use bags, "stores" are defined as:

1. Is a full-line, self-service retail store with gross annual sales of \$2,000,000 (\$2 million), or more, and which sells a line of dry grocery, canned goods, or nonfood items and some perishable items; or
2. Has over 10,000 square feet of retail space that generates sales and has a pharmacy as defined in ORS 689.005 and which is subject to the rules of the State Board of Pharmacy.

The ordinance states that "Stores shall provide only the following as checkout bags to customers: recycled paper bags, compostable bags, or reusable bags." The ordinance provides for enforcement of the prohibition and penalties of up to \$500 for violation of the law.

Staff Analysis

The ordinance only targets certain sized establishments, which raises equity concerns and reduces the intended objective of the ban. The ordinance does not support retailers to recoup the additional cost between plastic and paper bags. Finally, it promotes the use of compostable bags, which can negatively impact 1) plastic bag recycling by contaminating the commodity, and 2) food waste recycling by adding more bags to the system which can increase contamination as well as costs to process.

What did the Legislature try to enact?

During the 2011 Oregon State Legislative session, Senate Bill 536 was introduced which would prohibit the use of single-use checkout bags at retail establishments. (Legislature, 2011) Single-use checkout bags include plastic, recycled paper, or other material (e.g. biodegradable plastics) that are provided to the customer at check-out. Exemptions are provided so that retailers can provide single-use recycled paper bags at 1) no cost for customers receiving state support (Woman, Infants, and Children Program and

Electronic Benefits Transfer Cards for food stamps and TANF recipients) and 2) charging at least five-cents per bag.

Enforcement of the ban would be the responsibility of the Oregon Department of Environmental Quality. If the bill passed, it would supersede any local ordinance either previously enacted or in the future.

The City of Eugene Intergovernmental Review Committee reviewed the bill in January 2011 and passed a Priority 3 Support motion for the bill. The bill was reviewed in the Senate Rules Committee where it faced intense opposition from plastic bag manufacturer Hilex Poly. (Oregonian, 2011) Due to this opposition and the focus on budget hearings, the bill never made it to the Senate for a floor vote.

Staff Analysis

The bill garnered wide support from environmental groups including Environment Oregon, Surfrider Foundation, and the Sierra Club, as well from business groups including the Northwest Grocers Association and Association of Oregon Recyclers. The bill allowed for cost recovery by the retailers by setting a five-cent charge as a minimum standard. The ban was applied evenly to all retailers no matter the size or the type of business (with the exemption of dining establishments). The bill would set an “even playing field” across the state, which would decrease consumer confusion and allow for greater efficiencies for businesses operating in the state.

While the bill was very comprehensive it did possess a few areas of concern. Enforcement responsibility was placed onto DEQ without identifying a funding mechanism to support the enforcement efforts. The bill also would nullify and preclude any local actions that had been implemented or would be implemented, including the establishment of a tax, fee, assessment, or surcharge. Without adequate state funding for enforcement, the City would be required to implement and enforce the ban without the means to raise funding to support implementation efforts.

What are the environmental benefits?

The three main environmental impacts identified in the majority of disposable bag ban discussions are 1) litter and its impacts on wildlife (particularly marine life), 2) waste reduction, and 3) life cycle environmental impacts. These areas of inquiry include evaluations of the environmental impacts of plastic bags and paper bags.

Litter

One of the most prevalent arguments for banning plastic bags is to reduce the amount of litter being produced and the subsequent adverse impact to wildlife.

Litter impacts our communities as a nuisance that degrades our visual landscapes. It also impacts our infrastructure systems by clogging stormwater and wastewater systems. The City of Eugene Public Works Department does not track data on plastic bag impacts on maintenance and operations, but anecdotal information and photos show that plastic bags are part of the flotsam that clogs stormwater outfall systems and creates localized flooding.

The impact of plastic pollution has the greatest impact on marine environments and wildlife populations. The following excerpt from, “Keeping Plastics out of Puget Sound” gives a clear picture as to the magnitude of the problem. (Krehbiel, 2011)

“According to the United Nations Environment Programme, every square mile of ocean contains 46,000 pieces of floating plastic, on average. About one thousand miles off the Washington coast, more than 100 million tons of plastic garbage has concentrated in an area known as the Great Pacific Garbage Patch. Churned by ocean currents, this toxic, plastic soup spans an area twice the

size of Texas.¹ Within this area, plastic outweighs plankton by up to six times during certain times of the day. Plastic pollution ends up in ocean animals. In June 2011, researchers at UC San Diego's Scripps Institute of Oceanography published a study finding that nearly one in ten small fish collected in the middle of the Pacific Ocean had plastic in their bodies. The researchers estimated that world-wide, fish are eating as much as 24,000 tons of plastic each year. Over 260 marine species have been found with plastic in their stomachs or tangled around their bodies— interfering with feeding, movement and reproduction, and causing injury or death.

Waste Reduction

In 2009, the City of Eugene participated in DEQ's Waste Composition Study, which assessed what is in garbage across the state and in specific locals such as Eugene. The results from this study showed that recyclable plastic films constituted .63% (663 tons in 2010 disposal) of Eugene's total waste stream going into the landfill. The DEQ defines recyclable plastic films to include a wide variety of products, including retail plastic check out bags.² We are uncertain as to the specific percentage or weight that plastic grocery bags are of the plastic film waste stream, recognizing that the category as a whole represents less than 1% of the waste stream.

In regards to the total amount of plastic film that is recovered annually, the 2010 DEQ Material Recovery Report (<http://www.deq.state.or.us/lq/pubs/docs/sw/2010MRWGRatesReport.pdf>) estimates that 12,839 tons of plastic film were recycled in Oregon. This is less than .01% of all material recycled in 2010, and total plastics (film and rigid) account for only 2% of all recovered material on an annual basis in Oregon.

There is no conclusive data on per capita plastic bag usage for Eugene or Oregon, but we can use the Los Angeles County's Life Cycle Analysis of 433 bags per person per year as a proxy. (AECOM, 2010) Using the current Eugene population estimate of 156,222 people, this equates to 67.6 million bags used in Eugene per year. Assuming a high recycling rate of 10%, this means over 61 million bags are being thrown away or become litter annually by Eugene residents.

¹ The U.S. National Oceanic and Atmospheric Administration notes that there is uncertainty about the definition and size of the Garbage Patch, but the bottom line is that "man-made debris does not belong in our oceans and waterways." National Atmospheric and Oceanic Administration, De-Mystifying the "Great Pacific Garbage Patch," 13 June 2011, available at marinedebris.noaa.gov/info/patch.html#5.

² Recyclable plastic film includes plastic grocery bags, retail bags, newspaper bags, dry cleaner bags, pallet-wrap, shrink wrap, clear and black polyethylene plastic sheeting, hay sleeves and silage bags, fertilizer/peat/feed bags from nurseries and agricultural operations, furniture and mattress wrap, bubble wrap, woven lumber wrap, roofing material wrap, insulation wrap, commercial bags and liners, commercial parts packaging, and building wrap.

Life Cycle Impacts

Both the plastic and paper bag industries are resource intensive. These impacts range from those associated with raw material extraction (timber, oil, and natural gas) to the impacts associated with the production and distribution of the products (e.g. energy and water use and air emissions-including greenhouse gasses). Figure 1 below shows the comparative impact from single use plastic and paper bags.

Figure 1: Comparison of Impacts from Paper and Plastic Single Use Bags

	Paper (Per million produced)	Plastic (Per million produced)
Energy	<ul style="list-style-type: none"> • To produce: 2.51 billion BTUs* • To recycle: 1.44 billion BTUs** 	<ul style="list-style-type: none"> • To produce: 594 million BTUs • To recycle: 17 million BTUs
Resources	<ul style="list-style-type: none"> • Water: 1,457 m3 • Trees: 1,400 	<ul style="list-style-type: none"> • Water: 55 m3 • Petroleum: 120 barrels
Pollution	<ul style="list-style-type: none"> • CO2-equivalent: 76 tons • 50 x more water pollutants than plastic 	<ul style="list-style-type: none"> • CO2-equivalent: 31 tons
Wildlife	<ul style="list-style-type: none"> • Habitat destruction 	<ul style="list-style-type: none"> • Marine animals and sea birds adversely affected each year due to ingestion of or entanglement in plastic bags
Trash/Litter	<ul style="list-style-type: none"> • Time to biodegrade as litter: 1-2 months • Time to biodegrade in a landfill: Centuries** • Space in the landfill: 63 tons 	<ul style="list-style-type: none"> • Time to biodegrade as litter: Indefinite (Plastics break into small plastic pieces as they degrade, but never truly return to organic material) • Time to biodegrade in a landfill: Indefinite/Never • Space in the landfill: 7 tons • An estimated 4 billion worldwide end up as litter every year—tied end to end the bags could circle the Earth 63 times

Source: (Dart, 2009)

There is no clear “best choice” between using paper or plastic single use bags. For instance, while there may be less energy and water use in the production of plastic bags than in paper bags, paper bags come from a renewable resource, are biodegradable, and have a greater carrying capacity than plastic. The Oregon DEQ addresses the issue of LCA’s for single use bags on its website (DEQ, 2011), captured here:

“Much has been made of competing claims of “greenness” between paper and plastic single-use bags. These claims are sometimes derived through studies called life cycle analyses, or LCAs. LCAs can be a useful way to understand products’ environmental impacts. DEQ has not commissioned its own LCA of grocery bags. It has reviewed several bag LCAs prepared by other organizations (governments and industries). From this review, it is clear that several important variables can significantly affect results. They include:

- *The number of plastic bags required to replace one paper bag (or vice versa).*
 - *Consumer behavior regarding reuse of plastic and paper bags (for example, as trash can liners), and how consumers would respond if single-use plastic checkout bags were no longer available.*
 - *Current and future recycling rates, and how the benefits of recycling are accounted for in the analysis.*
 - *How increases or decreases in paper use affect the amount of carbon stored in forests.*
- Because of uncertainty surrounding these variables, DEQ is not prepared at this time to make a definitive statement regarding other environmental impacts of different kinds of single-use bags.”*

How does this impact our Council goal of reducing solid waste?

What is the council goal for reducing solid waste?

The current policy landscape is outlined in the overview section. Here are the main take-aways.

- 1) Plastic bags represent a very small portion of total waste.
- 2) Banning only plastic leaves paper bags still in waste.
- 3) Better recycling of either bag is not the ultimate goal. Eliminating the manufacture and use of single-use disposable bags, with all the associated material and energy inputs, is the goal.

What are the economic costs & benefits for Eugene and Oregon?

To date there has not been a robust analysis of the economic impacts of plastic bag bans in Oregon or Eugene. The closest evaluation was conducted for Los Angeles County by AECOM Technical Services in November 2010. The report assumes that the economic impacts to the bag ban, while initially born by effected businesses, would eventually pass-through to the consumer.

This comprehensive report included data from international studies and programs such as those in Europe, Australia, and China as well as the United States, and evaluated the economic impact to consumers of a plastic bag ban and a switch to paper and/or reusable bags. The study found that the per capita cost to switch from free plastic bags to paper bags with a fee and reusable bags was \$3.56/per person per year. This took into account the total new cost (post ban) of \$6.81 per capita minus the existing cost (pre ban) of \$3.25 per capita. Additionally, the study assessed the cost for consumers to replace retail plastic bags as liners for trash at home, with a cost of \$1.37 per person per year. They also included the additional sales tax, which would not be an issue with Eugene consumers.

Therefore, using the LA County data as a proxy, we can estimate that the per capita cost to consumers from a bag ban would be \$4.93 annually.

What are the social equity implications?

There has not been an analysis conducted in Oregon or Eugene for the social equity implications on plastic bag bans. What is evident is that many of the bag bans recently adopted on west coast cities include language that provides paper bag fee exemptions or free reusable bags to individuals accessing state funded services (TANF, WIC, Food Stamps, etc).

The AECOM Report for LA County evaluated the socioeconomic impact for a proposed ordinance that would ban all plastic retail checkout bags and require at least 5cents is charged for recycled paper bags, but allow an exemption for residents participating in the California Special Supplemental Food Program for Women, Infants, and Children or in the Supplemental Food Program. They reported that the impact of the proposed ordinance on lower-income residents of the County was expected to be negligible.

Recommendations

The analysis above shows that a ban on disposable retail plastic bags has positive impacts from an environmental standpoint, albeit these are still unclear when compared with the impacts of disposable retail paper bags. At the same time there could be negative economic and equity impacts to Eugene residents and businesses. Much of the data and reports available are for other locations, or at a regional/state level, which tend to have slight variations when compared to actual local data. Due to the lack of 1) actual local data and 2) local outreach to potentially impacted businesses, staff recommends the following:

- Staff to conduct initial data gathering on the number of retail businesses that could be impacted by a disposable bag ban and/or fee.
- Staff conduct outreach to local businesses and stakeholder groups to identify major concerns and current movements (e.g. statewide policy and local business practices) that can inform the development of a comprehensive approach for addressing the environmental, equity, and economic impacts of single-use disposable bags.
- Create a recommendation, which could include policy action, budget estimates, implementation timeline and present to Council by June 1, 2012.

Works Cited

- (n.d.). Retrieved from <http://www.portlandonline.com/mayor/?c=53123>
- Dart, K. (2009). *Paper, Plastic, or Reusable*. Aspen: Community Office for Resource Efficiency.
- DEQ, O. (2011). *Waste Recovery*. Retrieved December 20, 2011, from DEQ Solid Waste: <http://www.deq.state.or.us/lq/sw/wasteprevention/bags.htm>
- Foundation, A. M. (Undated). *Algalita*. Retrieved June 7, 2011, from Algalita: www.algalita.org/research/np_gyre_sample07-08.html
- Hoshaw, L. (2009, November 9). Afloat in the Ocean, Expanding Islands of Trash. *New York Times*.
- Howden, K. M. (2008, February 5). The Worlds Rubbish Dump: A Tip that Stretches from Hawaii to Japan". *The Independent UK*.
- Krehbiel, R. (2011). *Keeping Plastics Out of Puget Sound*. Seattle: Environment Washington Research and Policy Center.
- Legislature, O. (2011, May 2). *Senate Bill 536*. Retrieved December 20, 2011, from <http://www.leg.state.or.us/l1reg/measures/sb0500.dir/sb0536.a.html>
- Oregonian. (2011, June 10). *Oregon Live*. Retrieved December 20, 2011, from Oregon Live: http://www.oregonlive.com/politics/index.ssf/2011/06/plastic_bag_ban_bill_dead_in_s.html
- Portland, C. o. (2011). *Mayor Sam Adams*. Retrieved December 20, 2011, from Portland Online: <http://www.portlandonline.com/mayor/?c=53123>
- Programme, U. N. (2006). *Ecosystems and Biodiversity in Deep Waters and High Seas*. UNEP Regional Seas Report and Studies No. 178.
- AECOM Technical Resources. *Economic Impact Analysis, Proposed Ban on Plastic Carryout Bags in Los Angeles County*. 2010.
- Community Office of Resource Efficiency. *Paper, Plastic, or Reusable? A Study for the City of Aspen Regarding the Consumption of Single Use Shopping Bags*. 2009.
- Seattle Public Utilities. *Alternatives to Disposable Shopping Bags and Food Service Items*. 2008.
- Environment Washington. *Keeping Plastic out of Puget Sound, Why Washington Should Join the Global Movement to Reduce Plastic Bag Pollution*. 2011